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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/609,178 | 06/30/2000 | Robert J. Deri | IL-10504 | 2665 |

7590

02/15/2002

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REC'D FEB 20 2002

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| EXAMINER | |
| WOOD, KEVIN S | |
| ART UNIT | PAPER NUMBER |
| 2874 | |

DATE MAILED: 02/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|-----------------|--------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/609,178 | DERI ET AL. | |
| | Examiner | Art Unit | |
| | Kevin S Wood | 2874 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 11 December 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,10,13,16 and 17 is/are rejected.
- 7) ☒ Claim(s) 4,6-9,11,12,14,15 and 18-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 11 December 2001 is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendments

1. This action is responsive to amendment A filed 12/11/01. Claims 1-20 are pending in this application.
2. Based on applicants amendment, the objections to the specification are withdrawn. Based on applicants amendment/arguments the rejections of claims 2-9, 11-12, 14, 16, and 19-20 under 35 U.S.C. 112 are withdrawn, and the rejections of claims 16, 19, and 20 under 35 U.S.C. 102(e) have been withdrawn.

Response to Arguments

3. Applicant's arguments filed 12/11/01 have been fully considered but they are not persuasive. The examiner has thoroughly reviewed the applicants arguments but firmly believes the cited references to reasonably and properly meet the claimed limitations. Applicants primary arguments were that the Suemura does not disclose the limitations of claim 1, and that McMahon does not disclose the limitations of claim 16. The applicant has requested that the examiner point out the where the limitations are disclosed within each reference.

Referring to applicants arguments that Suemura does not disclose the limitations of claim 1, Suemura clearly discloses a device that includes at least one diffraction grating which utilizes only N wavelengths to interconnect N inputs to N outputs in a fully non-blocking manner. In Fig. 6, Suemura discloses a multiplexer that includes a diffraction grating (105). The multiplexer utilizes four wavelengths, and includes four

inputs. In Fig. 7, Suemura discloses a demultiplexer that includes a diffraction grating (117). The demultiplexer also includes four outputs for outputting the four wavelengths. In Fig. 4 and Fig. 5, Suemura clearly discloses that the multiplexer and the demultiplexer are to be combined so that the output signal from the multiplexer is coupled to the input of the demultiplexer. This combination of the demultiplexer and the multiplexer discloses all of the limitations of the claimed invention. The combination contains: two diffraction gratings; four inputs; four outputs; and utilizes only four wavelengths; and operates in a fully non-blocking manner. See Fig. 4-7, along with their respective portion of the specification.

Referring to applicants arguments that McMahan does not disclose the limitations of claim 1, McMahan clearly discloses a device that includes: at least one diffraction grating for receiving a number of inputs and for discharging a greater number of outputs, and means for combining at least a portion of the outputs. McMahan discloses this device in Fig. 6 of the reference. In Fig. 6, McMahan discloses a grating (20), three input fibers, and five output fibers (24,26,28,30,32). McMahan also discloses that output fibers (30,32) are used to redirect light beams through the grating again in order to combine the light beams with the light beams that are already being output through output fibers (24,28). In Fig. 7B, McMahan discloses another embodiment of the grating and lenses used within the device disclosed in Fig. 6. The alternative embodiment of Fig. 7B includes a diffraction grating (84). When the alternative grating embodiment of Fig. 7B is used within the device disclosed in Fig. 6, all of the limitations of the claimed invention are present. The device includes a diffraction grating for

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receiving three inputs, and for discharging five outputs, where some of the outputs are combined by passing them through the grating a second time. See Fig. 6 and Fig. 7C, along with their respective portion of the specification.

Referring to the applicants arguments that the definition of "N" is clear in claims 1 and 10, the arguments are not persuasive. The applicant points out a chart in the Background section of the specification and states that it represents a definition for "N" in the claims. This is not a sufficient definition. A clear definition should be provided within the claim and should be in a form so as to distinctly claim an invention.

The Applicant has failed to respond to the rejection of claim 13 under 35 U.S.C 112. The claim is unclear. There has been no definition of "n" provided in the claim or in the specification.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what "N" means within this claim.

6. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what "n" means within this claim.

change to "N"
N is any number, see page 8, line 11

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 1-3, 5, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,243,178 to Suemura et al.

Referring to Claim 1, Suemura et al. discloses all of the limitations of the claimed invention in Fig. 4-7. Fig. 6 discloses a multiplexer that includes a diffraction grating (105), Fig. 7 discloses a demultiplexer that includes a diffraction grating (117), Fig. 4 and 5 disclose the combination of the multiplexer and demultiplexer where there are N inputs, N outputs, and N wavelengths.

Referring to Claim 2, Suemura et al. discloses all of the limitations of the claimed invention. The diffraction grating in the demultiplexer is augmented by a multiplexer,

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which a directional coupler. The diffraction grating in the multiplexer is augmented by the demultiplexer, which is a wavelength selective device.

Referring to Claim 3, Suemura et al. discloses all of the limitations of the claimed invention. The multiplexer and demultiplexer are directional couplers.

Referring to Claim 5, Suemura et al. discloses all of the limitations of the claimed invention. The diffraction grating in the demultiplexer receives the outputs from the diffraction grating in the multiplexer.

Referring to Claim 15, Suemura et al. discloses a coupler (109) for combining the outputs of the multiplexer's diffraction grating.

9. Claims 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,208,692 to McMahon.

Referring to Claim 16, McMahon discloses all the limitations of the claimed invention. See Fig. 6, 7B, and 7C.

Referring to Claim 17, McMahon discloses all the limitations of the claimed invention. The Littrow Mount transmultiplexer in Fig. 7B is a directional coupler.

Allowable Subject Matter

10. Claims 4-9, 11-12, 14, and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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11. Claims 10 and 13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin S Wood whose telephone number is (703) 605-5296. The examiner can normally be reached on Monday-Thursday (7am - 5:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 307-0956.

KSW
February 14, 2002



Brian Healy
Primary Examiner